TABLE

Digital Image Issue	How to Detect	Automated Process to Resolve Issue
Pin cushion, barrel, or mustache distortion	Detect distortion based on a deviation from rectilinear projection	Apply Brown-Conrady model
Straighten/deskew	Analyze alignment indicators	Use one or more straight edges from a cut out portion of a capture guide as a straight edge and transform the digital image based upon the straight edge as captured in the digital image.
Misalignment	Analyze alignment indicators	Determine locations for alignment indicators. Overlay a digital image with the application provided alignment indicators. Optionally, allow adjustment of positions for the application provided indicators. Transform digital image, based on location of the application provided alignment indicators.
Color/lighting correction	Compare marker colors (e.g., black and white markers)	CLAHE
Dimensions of swatch out of proportion/image scaling	Compare dimensions of sample material area shown in an image to known dimensions of a cut out area. For example, if a cut out area is known to be a certain dimension, the sample material area should have similar dimensions.	Apply stretching or shrinking algorithm to adjust one or both height and width of swatch to known size of a cut out portion.
Edge artifact for swatch	Edges of a swatch do not properly match with another edge of the swatch if the swatch is stitched.	Provide cropped version or swatch in a crop verification preview. Allow adjustment to cropped version or swatch, if pattern or other features of a sample material are misaligned. An edge artifact algorithm may also be applied to prepare a swatch for stitching.

[0144] This description of the invention has been presented for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form described, and many modifications and variations are possible in light of the teaching above. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications. This description will enable others skilled in the art to best utilize and practice the invention in various embodiments and with various modifications as are suited to a particular use. The scope of the invention is defined by the following claims.

The invention claimed is:

1. A method comprising:

capturing an initial sample image using an application executing on a mobile device, wherein the initial sample image includes at least the following visible areas:

a sample area, and a capture guide area including a capture guide and an alignment indicator included as part of the capture guide;

identifying the alignment indicator in the initial sample image;

based on the identified alignment indicator, transforming the initial sample image to obtain an alignment corrected sample image;

in the alignment corrected sample image, identifying a sample swatch area, wherein the sample swatch area includes at least one instance of a pattern found in the initial sample image; and

storing on the mobile device the sample swatch area and the initial sample image.

2. The method of claim **1** wherein transforming the initial sample image comprises

determining a bounded area where the sample area is shown in the initial sample image.

3. The method of claim **2** wherein the bounded area corresponds to the sample swatch area.

4. The method of claim **1** wherein transforming the initial sample image comprises correcting a skew of the initial sample image.

5. The method of claim **1** wherein the identifying the alignment indicator in the initial sample image is performed using an optical recognition of the alignment indicator.

6. The method of claim **1** comprising:

before capturing the initial sample image, determining via the mobile device an orientation of a sample and capture guide; and

before capturing the initial sample image, providing visual feedback indicating whether at a given time the mobile device is in a similar orientation of the sample and capture guide.

7. The method of claim **6** wherein taking an orientation comprises using a three-axis accelerometer of the mobile device.

8. The method of claim **1** comprising associating with the sample swatch area metadata comprising an International Standards Organization (ISO) sensitivity when the initial sample image was captured.

9. The method of claim **1** comprising:

rendering a three-dimensional model on a geometric form, wherein the rendered three-dimensional model comprises at least a portion of a surface of the three-dimensional model including the sample swatch area.

10. The method of claim **9** wherein the geometric form comprises at least a portion of a human body.

11. The method of claim **9** comprising creating the surface of the three-dimensional model based on repeating at least two or more copies of the sample swatch area.

12. The method of claim **1** wherein the capture guide area entirely encloses at least a portion of the sample area in the initial sample image.

13. The method of claim **1** comprising:

before capturing the initial sample image, taking an orientation of a sample and capture guide by the mobile device;

before capturing the initial sample image and after a user input to capture the initial sample image, accessing an accelerometer of the mobile device to determine whether at a given time the mobile device is in a similar orientation of the sample and capture guide;